

Notice of Allowability

Application No.

10/036,140

Examiner

Ji-Yong D. Chung

Applicant(s)

MCCLELLAN ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendment filed on 12/14/2005.
2. ☒ The allowed claim(s) is/are 1-23.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☒ Other TPO-413B.

SUE
DAVID WILEY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100

DETAILED ACTION

Response to Amendment

1. **Claims 1-23** are pending. Independent claims are 1, 7, 10, 18, and 22.

Examiner's Amendment

2. An Examiner's amendment to the claims appears below. Should the changes be unacceptable to the applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this amendment has been granted in a telephone interview with Albert C Metrailler, Reg. No. 27,145.

3. The application has been amended as follows:

In claims:

1. (Currently amended) A system for communicating between an outside computer and a cluster of computers comprising:

a first computer and a second computer, comprising: a primary instance of a transmission control protocol resident on the first computer;

a primary data structure coupled to the primary instance describing the state of an association defining pathways between the cluster and the outside computer, the state description including names or addresses of the first computer, the second computer, and the outside computer;

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a secondary instance of a transmission control protocol resident on the second computer;

a secondary data structure coupled to the secondary instance replicated from the primary data structure;

an intra-cluster network coupling the first computer and the second computer;

a synchronization process coupled to the primary data structure and the secondary data structure replicating the primary data structure to the secondary data structure across the intra-cluster network to synchronize the structures;

wherein the primary instance comprises a first node in the association between the outside computer and the cluster and wherein the outside computer comprises an opposite node;

wherein the secondary instance comprises a second node in the association between the outside computer and the cluster;

wherein the association is configured such that address of the first node and the address of the second node are provided to the opposite node at the same time as different addresses for the same node through the communication between the cluster and the opposite node in accordance with the transmission control protocol.

7. (Currently amended) A system for communicating between an outside computer and a cluster of computers comprising a first computer, a second computer, and a third computer comprising:

a primary instance of a transmission control protocol resident on the first computer;

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a primary data structure resident on the second computer coupled to the primary instance describing the state of an association defining pathways between the cluster and the outside computer, the state description including names or addresses of the first computer and the third computer in the cluster and of the outside computer;

a secondary instance of a transmission control protocol resident on the third computer coupled to the primary data structure;

an intra-cluster network coupling the first computer, the second computer, and the third computer;

wherein the primary instance comprises a first node in the association between the outside computer and the cluster and wherein the outside computer comprises an opposite node;

wherein the secondary instance comprises a second node in the association between the outside computer and the cluster;

wherein the association is configured such that the address of the first node and the address of the second node are provided to the opposite node at the same time as different addresses for the same node through the communication between the cluster and the opposite node in accordance with the transmission control protocol.

10. (Currently amended) A method of communicating between an outside computer and a first computer using a transmission control protocol comprising:

instantiating a primary instance of the transmission control protocol on the first computer;

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instantiating a corresponding instance of the transmission control protocol on the outside computer;

instantiating a secondary instance of the transmission control protocol on a second computer coupled to the first computer;

building an association defining pathways of communication between the primary instance and the corresponding instance wherein the address of the secondary instance and the address of the primary instance are provided to the corresponding instance at the same time and the address of the secondary instance is defined as an alternate address for the primary instance through the communication between the first computer, the second computer, and the outside computer in accordance with the transmission control protocol;

storing state information regarding the association in a primary data structure coupled to the primary instance, the state description including names or addresses of the first computer, the second computer and the outside computer;

replicating the primary data structure to a secondary data structure coupled to the secondary instance;

communicating between the primary instance and the corresponding instance through the pathways defined by the association using the transmission control protocol;

updating state information regarding the association in the primary data structure;
and

synchronizing the secondary data structure to reflect updates to the primary data structure.

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18. (Currently amended) A method of communicating between an outside computer and a first computer using a transmission control protocol comprising:

instantiating a primary instance of the transmission control protocol on the first computer;

instantiating a corresponding instance of the transmission control protocol on the outside computer;

instantiating a secondary instance of the transmission control protocol on a second computer coupled to the first computer;

building an association defining pathways of communication between the primary instance and the corresponding instance wherein the address of the secondary instance and the address of the primary instance are provided to the corresponding instance at the same time and the address of the secondary instance is defined as an alternate address for the primary instance through the communication between the first computer, the second computer, and the outside computer in accordance with the transmission control protocol;

storing state information regarding the association in a primary data structure coupled to the primary instance but located on a separate computer from the primary instance and coupled to the secondary instance, the state description including names or addresses of the first computer, the second computer and the outside computer;

communicating between the primary instance and the corresponding instance through the pathways defined by the association using the transmission control protocol;

updating state information regarding the association in the primary data structure;

and

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on failure of the first computer on which the primary instance resides, communicating between the secondary instance and the corresponding instance through the pathways defined by the association as stored in the primary data structure.

22. (Currently amended) A method of communicating between an outside computer and a first computer using a transmission control protocol comprising:

instantiating a primary instance of the transmission control protocol on the first computer;

instantiating a corresponding instance of the transmission control protocol on the outside computer;

instantiating a secondary instance of the transmission control protocol on a second computer coupled to the first computer;

building an association defining pathways of communication between the primary instance and the corresponding instance wherein the address of the secondary instance and the address of the primary instance are provided to the corresponding instance at the same time and the address of the secondary instance is defined as an alternate address for the primary instance through the communication between the first computer, the second computer, and the outside computer in accordance with the transmission control protocol;

storing state information regarding the association in a primary data structure coupled to the primary instance, the state description including names or addresses of the first computer, the second computer and the outside computer;

communicating between the primary instance and the corresponding instance through the pathways defined by the association using the transmission control protocol;

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updating state information regarding the association in the primary data structure;
and

upon detection of a triggering event, replicating the primary data structure to a secondary data structure coupled to the secondary instance.

Allowable Subject Matter

4. The subject matter of the independent claim 1 combines (1) an features of existing technology related to Stream Control Transmission Protocol (SCTP) and (2) data structures that support failover of a computers on SCTP-like protocol on one end of a communication path.

Baudot et al (Pub. No. US 2002/0107966, Baudot hereinafter) illustrates an application of using a communication protocol, TCP/IP, to support a failover of a server. However, Baudot does not show the use of SCTP, nor does it teach that the addresses of the nodes in one end of the path appears as a single node to the outside computer.

Rajhalme (Pub. No. US 2004/0107234) illustrates the use of a transmission protocol that allows the addresses of two nodes on one end of the path to appear as a single node to the outside computer, but not concurrently, as recited in the claims.

Fundamentally, the claim delineates the use of data structures to support the essential features of SCTP-like protocol, for a failover. While Baudot teaches data structures adapted to deal with failover, it does not teach the data structure changes that are necessary to accommodate SCTP-like protocols.

Rajhalme does not quite describe SCTP-like protocol, as claimed.

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In view of the foregoing reasons, neither Baudot nor Rajhalme anticipates the independent claim 1. The references do not render claim obvious, because they do not suggest or teach how the data structures must be adapted to support the failover of servers on one end of the communication path, using SCTP-like protocols.

6. The reasons for allowance for claim 1 apply to independent claims 7, 10, 18 and 22 for substantively the same reasons.

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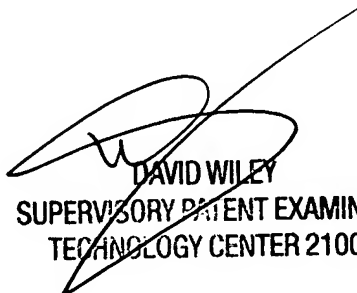
Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ji-Yong D. Chung whose telephone number is (571) 272-7988. The examiner can normally be reached on Monday-Friday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wiley can be reached on (571) 272-3923. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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